





BUREAU OF FIRE SERVICES MARIJUANA INSPECTORS

- JOHN HAGER: <u>HAGERJ@MICHIGAN.GOV</u>
- PAUL DOVE: <u>DOVEP1@MICHIGAN.GOV</u>
- JAMES BRADFORD: BRADFORDJ@MICHIGAN.GOV
- ADAM DAILIDE : <u>DAILIDEA@MICHIGAN.GOV</u> (PLAN REVIEWER)

OBJECTIVES

- Understanding of local municipality (AHJ) and Bureau of Fire Services (BFS) roles and responsibilities
- Role of Firefighters Right to Know
- P Define model code being used by BFS plan review and inspections
- P Define different types of marijuana occupancies
- Develop knowledge of marijuana processes
- Recognize hazards associated with each marijuana occupancy
- Recognize most common code violations
- Understand clandestine/illegal marijuana as they relate to on-scene operations

HISTORY OF LEGAL MARIJUANA IN MICHIGAN

2008 Michigan Medical Marihuana Act

- Allows for patient/caregiver relationship regarding medical marijuana.
- Patients may possess up to 12 plants and 2.5 ounces of marijuana.
- Caregivers may register to serve up to 5 patients.
- Patients/caregivers must be registered with the state registry program.
- May not sell marijuana.

CLICK FOR INFO ON APPLYING FOR A MEDICAL MARIHUANA REGISTRY CARD



2016 Medical Marihuana Facilities Licensing Act

- Allows for commercial sale of marijuana to patients and caregivers.
- ▶ Five different types of licenses granted by the Medical Marihuana Licensing Board: growers, processors, provisioning centers, secure transporters, safety compliance facilities.
- May not sell marijuana to non-cardholders.
- Map of licensed facilities available at Michigan.gov/BMR.

CLICK FOR INFORMATION ON MEDICAL MARIHUANA FACILITIES

This information is accurate as of December 6, 2018.

The provisions of all three laws are concurrently in place and active.

2018 Michigan Regulation and Taxation of Marihuana Act

- ▶ Up to 12 plants per household and 10 ounces. Amounts greater than 2.5 ounces must be locked in a safe.
- Up to 2.5 ounces on your person, no more than 15 grams of marijuana concentrates.
- Allows for commercial sale of marijuana to adults over the age of 21.
- Six different types of licenses granted by the Bureau of Marijuana Regulation: growers, processors, retailers, microbusinesses, secure transporters, safety compliance facilities.
- Commercial license applications available by December 6, 2019.

CLICK FOR INFORMATION ON ADULT-USE RECREATIONAL MARIHUANA

FIREFIGHTER'S RIGHT TO KNOW



Department of Energy, Labor and Economic Growth Bureau of Fire Services Fire Marshal Bulletin – 9 Fire Department Hazardous Material Emergency Planning Responsibilities

This document replaces, expands, and provides in one document a summary of the three requirements regarding emergency planning for a hazardous material incident. This bulletin was jointly developed by the Department of State Police, and former Departments of Labor and Public Health in 1987 and was revised in 1994 as a result of an Attorney General Opinion.

The three emergency planning requirements that fire departments and/or the communities they serve must meet are: 1) Firefighter Right-to-Know, 2) Hazardous Waste Operations and Emergency Response (HAZWOPER), and 3) Superfund Amendments and Reauthorization Act (SARA) Title III.

*NOTE: Material Safety Data Sheets (MSDS) are now referred to as Safety Data Sheet (SDS)

A. Firefighter Right-to-Know

Background:

Section 14i of Act 154, as amended, the Michigan Occupational Safety and Health Act requires that the chief of an organized fire department prepare and disseminate to each firefighter a plan for executing the department's responsibilities with respect to each site within their jurisdiction where hazardous chemicals are used or produced. There are no exemptions based on the quantity of chemical at the site. The purpose of this act is to ensure firefighter safety.

The administration and enforcement of this provision is under the jurisdiction of the Department of Energy, Labor & Economic Growth (DELEG), Michigan Occupational Safety and Health Administration (MIOSHA), General Industry Safety Division (GISHD), (517) 322-1831.

Section 5p of the Michigan Fire Prevention Code (Act 207, as amended) requires that a firm handling hazardous chemicals provide the following information upon request of the fire chief:

- A list of the hazardous chemicals on site and a material safety data sheet (MSDS) for each chemical on the list.
- A description of the quantity and location of any hazardous chemical specified by the fire chief after a review of the list.

Steps for Implementation:

- 1. As a first step, the fire chief surveys all sites within the fire jurisdiction which may have hazardous chemicals on site. The purpose of the survey is to gather information on the chemicals at each site and to determine whether the site uses or produces hazardous chemicals. The survey is used as a tool for gathering the information the chief is authorized to obtain under Act 207 as described above. A suggested letter which the chief may send to each site, along with the survey form, is included as Attachment A. The survey form is included as Attachment B. Site location information, mailing addresses, etc., may be obtained from tax rolls, building inspectors, etc.
- 2. The survey form lists the chemical types and specifies quantities for each. Even though a plan is required at a site which uses or produces hazardous chemicals, regardless of quantity, the quantities at a site will determine if a sitespecific plan must be developed or if the site can be addressed in a general plan. This is explained in further detail below.
- 3. The fire chief must make every effort to obtain completed surveys from each site. If a site refuses to cooperate, the chief should follow up with a second letter of request. A sample follow up letter is included as Attachment C.
- 4. If the site continues to be uncooperative, the chief may refer the case to the Department of Labor & Economic Growth, MIOSHA. The referral form to be used by the fire chief is included as Attachment D. MIOSHA may cite the location for failure to be in compliance with the MIOSHA Hazard Communication Standard.
- 5. The fire chief should keep a copy of each completed survey, even those returned showing that few or no hazardous chemicals are present at the site. In addition, the chief must keep a file of "no responses" and a file of the follow up correspondence written in an attempt to obtain a response.
- 6. The fire chief should have surveys on file that are not older than five years. Sites are requested to update their survey form as conditions change on the site. However, if no update has been submitted within the last five years, the chief must solicit an updated survey. Current information must be kept on file to fulfill the requirements of the law.

- 7. In addition, the fire chief must survey new or changed sites (change of ownership, expanded, conducting new business, etc.) as they occur. Information on new sites and additions to sites may be obtained with the assistance of the building inspector, zoning authority, tax rolls, etc.
- 8. When the surveys are returned, the fire chief must first separate those sites which use or produce hazardous chemicals from all others. These are the sites for which a plan (either site-specific or general) is required.
- 9. The chief must further separate the user and producer sites according to hazardous chemical quantity. For those sites which use or produce hazardous chemicals at or above the specified quantities, the fire chief must develop a site-specific plan. See #10 below. Other sites with hazardous chemicals under the specified quantities can be addressed by a general plan. See #11 below.
- 10. For those sites which use or produce hazardous chemicals at or above the specified quantities, the fire chief must develop a site-specific plan. This should be the chief's planning priority. To comply with the Firefighter Right-to-Know requirements:
 - a. Develop a site-specific plan for each site. See Attachment E for the list of planning elements which should be included in this plan.
 - b. Obtain more detailed information about each site as necessary to address the elements in Attachment E. (The survey form is used to determine the sites for which site-specific plans are necessary. Now additional information needs to be obtained for planning purposes). The chief may request additional information under the authority of Act 207 as described above in the introduction. The chief may also use the information which is provided through the Superfund Amendments and Reauthorization Act (SARA) Title III reporting requirements. (See Section C below, starting on page 5.)
 - c. The Department of State Police, Emergency Management and Homeland Security Division publication 308, Guidance for Community Hazmat Response Plans, contains worksheets which may be used in developing site-specific plans. Refer to Attachment F for a matrix of the planning elements cross referenced to pages in the workbook. Copies of this workbook are available through Local Emergency Planning Committees (LEPCs) or the Michigan State Police, Emergency Management and Homeland Security Division. (See Section C starting on page 5.)



MARIJUANA REGULATION RULES

SECTION 206 OF THE MEDICAL MARIJUANA FACILITIES LICENSING ACT, 2016 PA281, MCL 333.27206.

BUREAU OF MARIJUANA REGULATION RULES:

- Rule 34 BUILDING AND FIRE SAFETY states in part:
- (1) An applicant's proposed marihuana facility and a licensee's marihuana facility are subject to inspection by a state building code official, state fire official, or <u>code enforcement official</u> to confirm that no health or safety concerns are present.
- Local AHJ can inspect at any time

BUREAU OF FIRE SERVICES ENFORCEMENT CONTINUED:

- (3) An applicant or licensee shall not operate a marihuana facility unless a permanent certificate of occupancy has been issued by the appropriate enforcing agency. Before a certificate of occupancy is issued, work must be completed in accordance with the Stille-DeRossett-Hale single state construction code act, 1972 PA 230, MCL 125.1501 to125.1531. An applicant or licensee shall comply with both of the following:
- (a) An applicant or licensee shall obtain a building permit for any building utilized as a proposed marihuana facility as provided in the act and these rules. The issuance, enforcement, and inspection of building permits under the Stille-DeRossett-Hale 1972 PA 230, MCL 125.1501 to 125.1531.
- (b) An applicant or licensee shall obtain a building permit for a change of occupancy for an existing building to be utilized as a proposed marihuana facility or marihuana facility as provided in the act and these rules.

BUREAU OF FIRE SERVICES ENFORCEMENT CONTINUED:

- (4) An applicant or licensee shall not operate a marihuana facility unless the proposed marihuana facility or marihuana facility has passed the prelicensure fire safety inspection by the BFS. The State Fire Marshal, or his or her authorized designee, may conduct prelicensure and post-licensure inspections of a marihuana facility. An applicant or licensee shall comply with the all of the following:
- (a) A BFS inspection may be conducted at any reasonable time to ensure fire safety compliance as provided in this rule and subrule (5) of this rule. A BFS inspection may be annual or biannual and may result in the required installation of fire suppression devices or other means necessary for adequate fire safety pursuant to state standards.
- (b) The BFS may require marihuana facilities to obtain operational permits, including but not limited to, any of the following:

BUREAU OF FIRE SERVICES ENFORCEMENT CONTINUED:

- For specific installation or systems, BFS may require facilities to obtain construction permits, including but not limited to, any of the following:
- (i) Building construction.
- (ii) Electrical, mechanical, plumbing, boiler, and elevator.
- (iii) Compressed gases.
- (iv) Flammable and combustible liquids.
- (v) Hazardous materials.
- (vi) Liquified petroleum (LP) gas.
- (vii) Automatic fire extinguishing/suppression systems.
- (viii) Fire alarm and detections systems.
- (ix) Related equipment found during fire safety inspections

BUREAU OF MARIJUANA REGULATIONS BULLETINS

BMR Bulletins:

- Advisory Bulletins General information on a variety of issues
- Technical Bulletins Inspection guides, approved/banned pesticide list, safety compliance facility information, retesting and remediation
- Lara Tips for Licensees Criminal background checks for facility employees, tips for licensees, fire-rated separations
- Located at https://www.michigan.gov/lara

CODES AND REFERENCES

- \triangleright NFPA 1, 2018, Specifically chapter 38 and references.
- \blacktriangleright Used by BFS for plan review/ inspection and enforcement.
- This is in addition to any local fire code requirements

If there are differences.....

USE MOST STRINGENT OF THE TWO CODES

PLAN REVIEW MARIJUANA DIVISION

ADAM DAILIDE

DAILIDEA@MICHIGAN.GOV

BASICS

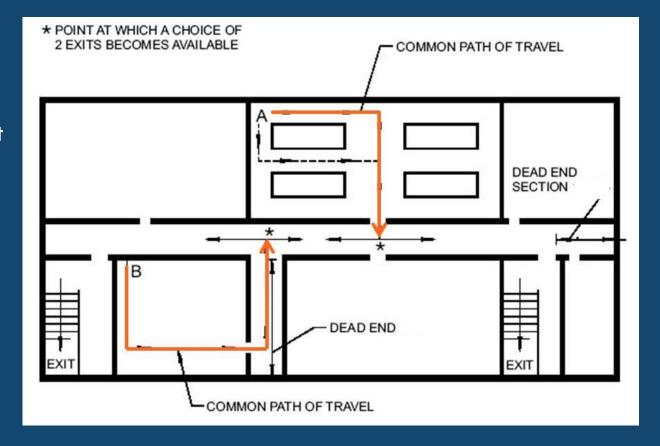
- Facility Plans to be Reviewed for Fire & Life Safety by BFS and Local AHJ
 - Grow
 - Outdoor Grow
 - Processor
 - Site plan of building is not reviewed
- Publications
 - NFPA 1, 2018
 - NFPA 101, 2018

- Common Path of Travel
- Sprinkler System
- Separation
- Extraction Rooms

COMMON PATH OF TRAVEL

- 3.3.66 Common Path of Travel.

 The portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available.
 - Unsprinklered 50'
 - Sprinklered 100'



• SPRINKLERS

- <u>New industrial occupancies</u>, other than low-hazard industrial occupancies, shall be protected by an approved automatic sprinkler system in accordance with NFPA 13 in any of the following locations.
 - Throughout all industrial occupancies 3 or more stories in height,
 - Throughout all industrial occupancies exceeding 12,000 sq. ft. in fire area,
 - Where the total area of all floors, including mezzanines, exceeds 24,000 sq. ft.

SEPARATION

- The Occupancy of buildings or portions of buildings where the growing or processing of marijuana occurs shall be in accordance with Chapter 6 and the applicable building code.
 - Extraction Rooms will be considered **Industrial Special Purpose**.
 - Separate the Extraction room with a 1-hour fire barrier using "Separated Occupancy"
 - Comply with the most restrictive requirements of the occupancies using "Mixed Occupancy"
 - Provisioning Centers are considered Mercantile and require a 2-hour separation with Industrial (Grow and Processor)

EXTRACTION ROOMS

 For other than CO2 and nonhazardous extraction process, the marijuana extraction equipment and process shall be located in a room of noncombustible construction dedicated to the extraction process and the room shall not be used for any other purpose.



EXTRACTION ROOMS

- For extraction rooms using hazardous materials, each room shall be provided with at least one exit access door complying with the following:
 - The door shall:
 - swing in the direction of egress travel
 - be provided with a self-closing or automatic closing device
 - be equipped with panic or fire exit hardware



QUESTIONS







TYPES OF MARIJUANA FACILITIES

- Growers
- Processors
- Provisioning Centers
- Safety Compliance (Testing Labs)
- Secured Transporters



GROW FACILITIES

- Class A Licenses 500 plants
- Class B Licenses 1000 plants
- Class C Licenses 1500 plants

 Grow facilities are permitted to have stacked licenses

GROW FACILITIES

- Classified as a general industrial occupancy (NFPA 1, 2018)
- Required 2-hour separation from Mercantile or Business
- Plan review required by BFS and local AHJ
- Rooms broken down to different operations:

 Flower, veg, clone, and mother rooms
- Must have Certificate of Occupancy from AHJ



HAZARDS OF A GROW/C02 ENRICHMENT

- C02 enrichment usually less than 2000 ppm
- Can be piped in from outside bulk tank
- Portable tanks
- C02 burners
- Supplied from building mechanical equipment

HAZARDS OF A GROW/C02 ENRICHMENT CONTINUED (BULK AND TANKS ONLY)

- C02 monitoring set at 5000 ppm
- Audio or visual alarm notification in room or area of use or storage
- NFPA 704 placarding on entrance doors to rooms and on exterior doors
- C02 warning signs on entrance doors to grow rooms
- Auto calibrating and self-zeroing shall be prohibited
- Monitoring device located no higher than 12 inches above floor

If cylinders are used, they need to be

secured











EXTERIOR BULK STORAGE CO2 BURNER CO2 GENERATOR





OTHER GROW CONCERNS:

- Fumigation
 - Signage
 - Watch personnel
 - Written notification
 - Sources of ignition
 - Occupant removal
 - Maintenance of openings
 - Venting and clean-up



MORE GROW OPERATIONS CONCERNS...

- Aisle width
- Spray on foam insulation NFPA 286 test intumescent paint or drywall protection
- Emergency lighting point by point calculations (required)
- Power taps UL-1363/1363A
- Extension cords
- Water tanks

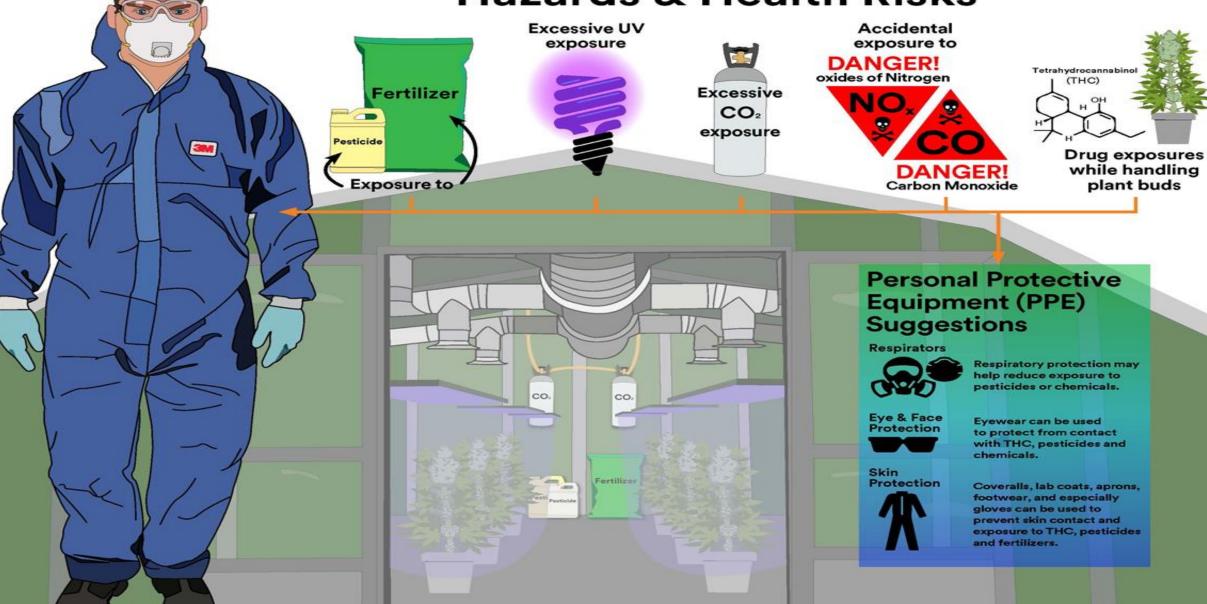
- Light hangers
- Sulfur burners (not permitted)
- Hazmat fertilizers and pesticides
- Secured access
- Placards
- Fire protection systems
- Dry rooms
- Interior finish / Plastic hanging

HAZARDS TO FIREFIGHTERS/ON SCENE OPERATIONS

- Building often a maze of rooms
- Entrapment hazards
- Falling debris hazards
- Pressurized cylinders
- > Large electrical usage
- Water tanks

- Secured points of entry
- Occupants
- The unknown What was added between inspections

Legal Cannabis Growing Operations Hazards & Health Risks







































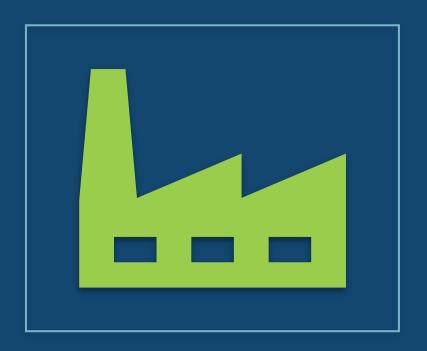












MARIJUANA PROCESSING FACILITIES

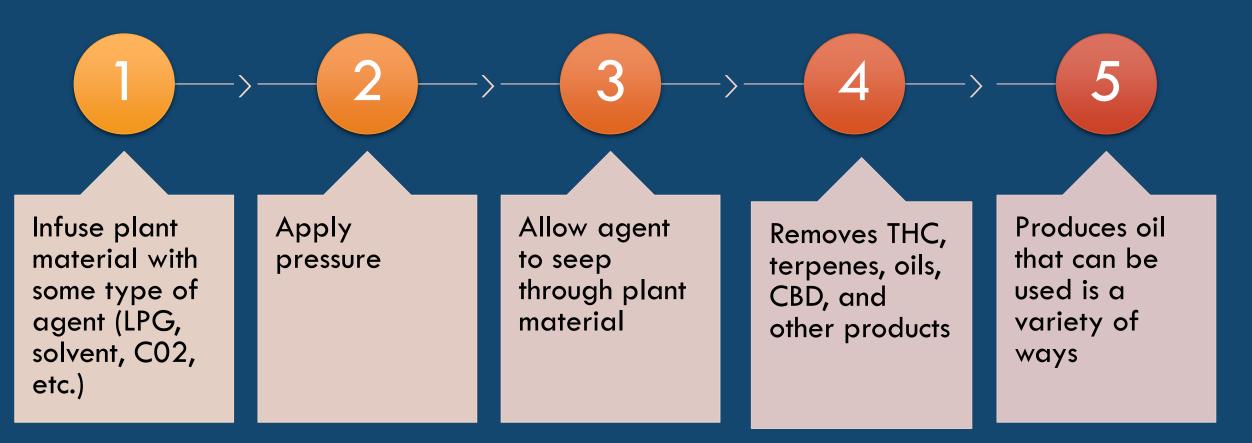
CLASSIFIED AS SPECIAL INDUSTRIAL



PROCESSING FACILITIES

- Extract resin or create infused products for sale
- Most hazardous area of marijuana industry
- Common extraction methods are:
 - LPG Extraction
 - Alcohol or other solvent extraction
 - C02 extraction
 - Miscellaneous methods

EXTRACTION PROCESS BASICS



LPG EXTRACTION

- Butane & Pentane is most commonly used
- Has to be done in closed loop extraction machine system
- Extraction machine has to be in C1D1 booth or lab hood
- Booth or hood shall have interlocking features
- Shall have gas monitoring set to 25% LEL/LFL
- Shall have automatic suppression system in booth/hood along with duct work

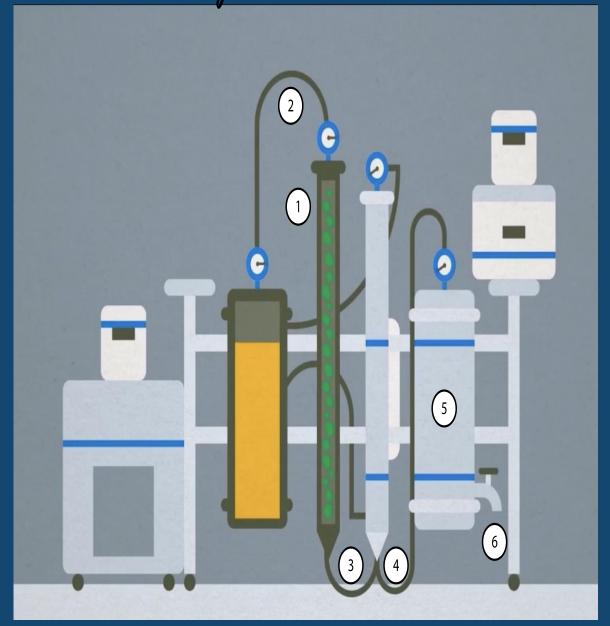
LPG EXTRACTION CONTINUED:

- > LPG containers shall not be stored in extraction rooms
- > Transfilling shall take place outside
- > NFPA 704 placard on entrance doors
- > Shall have an automatic emergency power system installed
- Used plant material must be allowed to off gas in booth/hood

LPG EXTRACTION

- 1. Material Prep source material is loaded into the extraction chamber
- 2. Material Wash solvent is transferred to the extraction chamber and allowed to soak
- 3. Solution transfer into recovery vessel
- 4. Solvent recovery
- 5. Oleoresin recover

Hydocarbon Extraction



LPG EXTRACTION — BULLET POINTS

- Low pressure/low temperature
- Common solvents include n-butane, isobutane and propane
- Solvents can be combined into multi-solvent systems
- Transfilling process vs. mobile tanks
- Common uses for technology
 - Large scale oil production: corn, canola, sunflower, etc.
 - Flavor and aroma isolation for food/beverage industry
 - Sample preparation for chemical analysis
 - Manufacture of drug precursors

LPG EXTRACTION EQUIPMENT

- Common equipment manufacturers in the cannabis space
 - Precision Extraction PX40
 - 860 lbs. per 24 hour run time, closed-loop solvent recovery
 - Extraction MeP
 - 180-360 lbs. per 24 run time, closed-loop solvent recovery





LPG EXTRACTION - SAFETY CONCERNS

Flammable gas (propane, butane)

Class 1,Division 1

Cold Solvent

Frostbite or soft tissue damage

Oxygen displacement within operator space

- Asphyxiation
- Mitigated by the C1D1 space

Solvent Inhalation

Mitigated by the C1D1 space

Equipment Operation

- Comprehensive Standard Operating Procedures
- Documented operator training curriculum
- Routine equipment maintenance and inspection
- Engineer approved operating space













C1D1 HOOD



FLAMMABLE LIQUID EXTRACTION

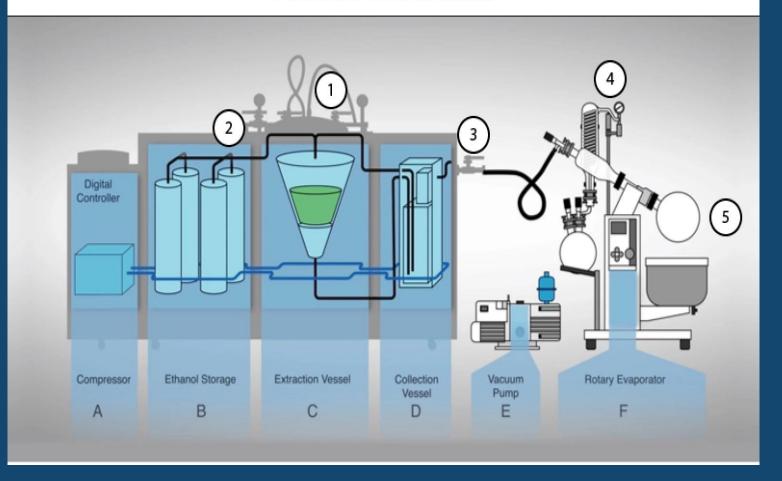
FLAMMABLE LIQUID EXTRACTION

- Most common solvents are ethanol, methanol and isopropyl alcohol
- Closed loop system
- Conducted in Chemical Fume Hood-Chapter 7 of NFPA 45 or approved exhaust system NFPA 91 or Mechanical Code
- Most facilities use C1D2 booth or hood
- Hood or booth have to have interlocking systems
- No fire suppression required in hood or booth unless building is required to be suppressed

FLAMMABLE LIQUID EXTRACTION CONTINUED:

- > Storage, use, and handling shall comply with NFPA 1, chapter 66
- Heating of flammable or combustible liquids over open flame is prohibited
- Maximum allowable quantities
- Signage, 704 placard, no smoking, flammable liquids
- > SDS

Alcohol Extraction



ALCOHOL EXTRACTION

- Material prep source material is loaded into the extraction chamber
- Material wash
- Solution transfer into recovery vessel
- Solvent recovery
- Oleoresin recover

Common equipment manufactures in the cannabis space:

ALCOHOL EXTRACTION EQUIPMENT

- Delta Separations CUP-30
 - 1800 lbs. per 24 hours using 1440 gallons of alcohol with 97% recovery
- Capna Systems Ethos-6
 - 288 lbs. per 24 hours using 36 gallons per run with 85% recovery
- Capna Systems Atles
 - 1920 lbs. per 24 hours using 164 gallons per run with 85% recovery

ALCOHOL EXTRACTION — SAFETY CONCERNS

Flammable liquids

Class 1, Division 2 operating space

Cold solvent temperatures

• Frostbite or soft tissue damage

Solvent Inhalation

Mitigated by the C1D2 enclosure

Equipment Operation

- Comprehensive Standard Operating Procedures
- Documented operator training curriculum
- Routine equipment maintenance and inspection
- Engineer approved operating space

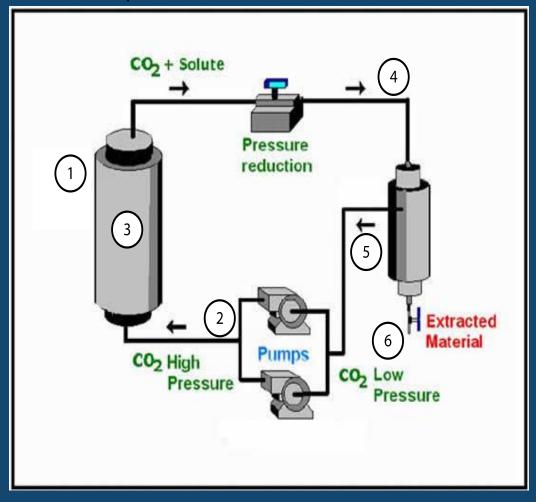
C02 EXTRACTION

C02 EXTRACTION

- High Pressure
- Gas detection system required set at 5000 ppm
- Pressure relief devices piped to exterior of building
- Auto calibrating and self-zeroing detectors are prohibited.
- No booth or hood requirement
- Signage, 704 placard, C02 warning signage

- Material prep
- Solvent pressurization and transfer
- Material wash solution is heated allowed to soak
- Solution transfer into expansion chamber
- Solvent recovery
- Oleoresin recovery

Supercritical Fluid Extraction



C02 COMMON EQUIPMENT

• Common equipment manufacturers in the Cannabis space:

Vitalis

- 175-240 lbs. per 24 hours
- 3000 psi or 5000 psi systems

Waters

- Up to 8700 psi
- Equipped with a co-solvent system

Apeks

- 140-200 lbs. per 24 hours
- 2000 psi or 5000 psi systems

• Eden Labs

- 240 lbs. per 24 hours
- 2000 psi or 5000 psi systems

High working pressures within systems

• 2000– 8700 psi

SAFETY CONCERNS

Cold solvent temperatures

Frostbite

Oxygen displacement within operator space

- Asphyxiation
- Mitigated through proper ventilation

Equipment Operation

- Comprehensive Standard Operating Procedures
- Documented operator training curriculum
- Routine equipment maintenance and inspection
- OSHA compliant operating space



OTHER POST EXTRACTION PROCESSES

Roto-vape (under hood or booth)

Ovens

Edibles (may require Kitchen Hood System)

Flammable liquid refrigeration

Infused soft drinks

Infused cooking products (oils, syrup, ketchup, butter, etc.)



HAZARDS TO FIREFIGHTERS/ON SCENE OPERATIONS



LPG and flammable liquids



Pressurized cylinders



Security



Unfamiliar equipment



Combustible dust

SAFETY COMPLIANCE FACILITIES

- Classified as business
- > Testing labs
- Flammable liquid storage cabinets
- Vent hoods
- SDS sheets
- Flammable liquids refrigerators
- Signage, 704 placard
- > UL 1363/1363A listed power taps
- General inspection practices







SECURED TRANSPORTER

- Classified as a business
- Possible inside storage of vehicles
- Security concerns
- > UL 1363/1363A
- Products may be stored up to 48 hours
- General inspection practices

PROVISIONING CENTERS

- Classified as a mercantile, providing products to card holders and authorized caregivers
- Separation may be required if attached to a processor or grow
- ► 2nd floor separation
- Security/roll-up doors/gates/fenced in area/vaults
- Blocked egress
- > Large product and cash present
- Situational awareness
- > UL 1363/1363A
- General inspection practices







Door Security









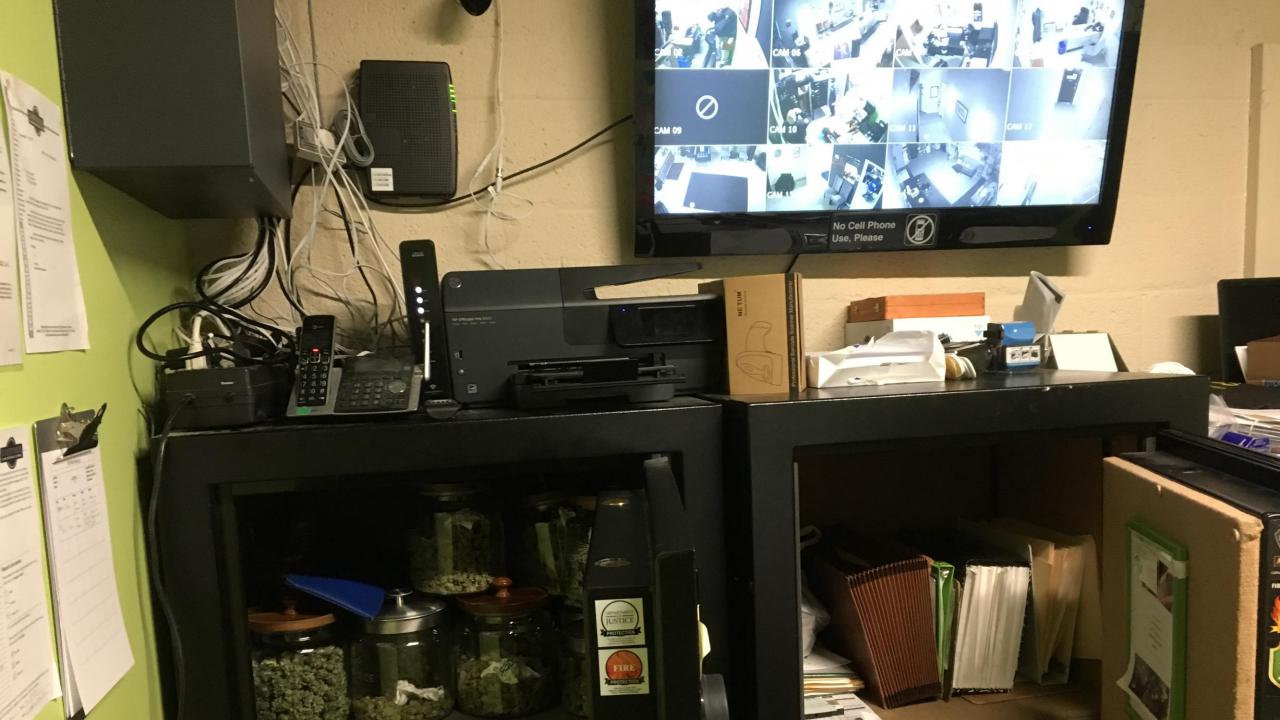












HAZARDS OF NON-REGULATED FACILITIES



- Large electrical feeds in homes, garages, commercial buildings
- More AC units than normal
- Blacked out windows
- Whole structure is filled with grow (maze of rooms and entanglement hazards)
- Non-permitted electrical and mechanical work









HAZARDS OF NON-REGULATED FACILITIES CONTINUED







BOOBY TRAPS



HAZARDOUS MATERIALS



OCCUPANTS

QUESTIONS